UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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OFFICE OF
AIR, WASTE, AND TOXICS

December 23, 2014

Mr. Stuart Clark
Program Manager
Air Quality Program
Washington State Department of Ecology
P.O. Box 47600
Olympia, Washington 98504

Dear Mr. Clark:

This letter is in follow up to my March 3, 2014 letter to you responding to the Washington State Department of Ecology's request that the U.S. Environmental Protection Agency (EPA) review a draft revision to the May 22, 2007 federal prevention of significant deterioration (PSD) permit for the electric steam generating project at the Simpson Tacoma Kraft (STK) facility in Tacoma, Washington. The draft PSD permit revision was prepared by Ecology in response to March 24, 2010 and August 20, 2010 applications from STK. The revision would relax the nitrogen oxides (NOx) best available control technology (BACT) limit and the annual NOx emission limit for Power Boiler #7 at the STK facility. In that letter I indicated that, based on the information then available to us, the permit record did not support a conclusion that the NOx BACT limit and annual NOx emission limit in the 2007 PSD permit were inappropriate and could be revised consistent with federal PSD requirements.

Subsequent to the March 3 letter, the EPA met several times with representatives from the company and Ecology. We have received significant additional information from STK with respect to changes made to the No. 7 Power Boiler, air pollutant emissions, and the quantity and characteristics of fuels burned, and permitted to be burned, in the No. 7 Power Boiler. The EPA requested that STK formally submit the additional information as a supplement to STK's application to Ecology to revise the PSD permit. The additional information was submitted by STK to Ecology on August 7, 2014 in correspondence from Dave McEntee to Jeff Johnston.

The EPA has evaluated the additional information provided by STK. Based on that evaluation, and contrary to our preliminary conclusions in the March 3, 2014 letter, we have determined that the criteria set out in the November 19, 1987 Memorandum titled "Request for Determination on Best Available Control Technology (BACT) Issues, Ogden Martin Tulsa Municipal Waste Incineration Facility" (Ogden Memo) are met in this case and that the permit record supports a conclusion that the NOx BACT limit set in the original permit is inappropriate. As a result of this determination, Ecology can, consistent with federal PSD requirements, propose to revise the NOx BACT limit and the annual NOx emission

limit[1] in the PSD permit. The EPA's findings with respect to the Ogden Memo criteria are set forth below.

Whether the source was constructed in conformity with the permit

The 2007 PSD permit approved STK's application to make modifications to emission units at the facility to construct and operate the electric steam generating project. These modifications included changes to the No. 7 Power Boiler, as set forth in the Findings section of the permit:

- Boiler improvements to produce the higher pressure and temperature steam required for power generation. These improvements will include adding tube area to #7 Power Boiler's superheater section, upgrading the pressure rating of #4 Recovery Boiler's generation bank, new pressure safety valves, and piping changes to handle higher pressure steam.

- Upgrades to #7 Power Boiler to increase its Maximum Continuous Rated (MCR) steaming capacity from 300,000 lb/hr to 340,000 lb/hr. These will include larger forced-draft and induced-draft fan motors, wood fuel feed system improvements, and possibly improvements to the ash handling, electrostatic precipitator, and other ancillary systems.

Neither the 2006 PSD permit application nor the final 2007 PSD permit completely describes all of the improvements and upgrades to the No. 7 Power Boiler that would be implemented to achieve the projects goals; however, based on the additional information provided, the EPA concludes that, as constructed, the No. 7 Power Boiler does conform to the application and permit and has since startup in 2009 been producing approximately 300,000 lb/hr of high pressure and temperature steam for power generation while burning permitted fuels.

Whether the permitted BACT levels are inappropriate as a result of errors, faulty data, or incorrect assumptions contained in the permit application

In its request for a revision to the 2007 PSD permit, STK asserts there was an error in the original NOx BACT determination, but neither STK's 2010 revision application nor Ecology's 2010 draft permit revision included information to adequately support that contention. The additional information that STK has now provided to Ecology supports STK's claim of error in the original BACT determination and there is no indication that STK intentionally acted to misrepresent or conceal data in its original and modified permit applications and BACT analysis.

The NOx BACT determination for the No. 7 Power Boiler included in the 2007 PSD permit was based on "good combustion practices," including the use of a new over-fired air system, when burning biomass. The permit's 30-day rolling average NOx BACT limit of 0.20 lbs/MMBtu appears to have been based on an overly optimistic assumption regarding the performance of the new over-fired air system along with the erroneous use of historic annual average emissions data instead of the more appropriate, and higher, 30-day rolling average emissions, as well as a failure to anticipate worst case emissions from permitted biomass fuel mixtures. The compounded effect of these types of errors is, as

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[1] The annual NOx emission limit was based on the NOx BACT limit; therefore, our conclusion that the original NOx BACT limit was inappropriate and can therefore be revised also provides a basis for revising the annual NOx emission limit to reflect the corrected NOx BACT limit provided the application demonstrates and Ecology concludes that the NO_2 NAAQS and applicable PSD increments will still be met.

we see in this case, a 30-day rolling NOx BACT limit that cannot be met on a continuous basis when the permitted fuels are burned and good combustion practices are used. An incorrect determination of the NOx "BACT floor" also contributed to the error in the NOx BACT permit limit. The definition of BACT at 40 C.F.R. § 52.21(b)(12) requires that the application of BACT would not result in emissions that would exceed the emissions allowed under any applicable standard under 40 C.F.R. parts 60 or 61 (the "BACT floor"). The NOx BACT limit was based on a mistake about which NOx standard in 40 C.F.R. part 60, subpart Db was the "applicable" standard for No. 7 Power Boiler at the time the permit was issued. The record reflects that Ecology incorrectly assumed at the time of permit issuance that the No. 7 Power Boiler would no longer be subject to a NOx standard as a result of a requested 10 percent limit on the use of oil and then incorrectly assumed that the "applicable" standard for purposes of the NOx BACT floor would be the limit for new or reconstructed sources of 0.20 lbs/MMBtu in 40 C.F.R. § 60.44b(l). Ecology and STK have since recognized that the No. 7 Power Boiler was, and still is, subject to the NOx limit of 0.30 lbs/MMBtu in 40 C.F.R. § 60.44b(d) because there is no enforceable limit on the use of natural gas. Because this is the 40 C.F.R. part 60 standard actually applicable to the boiler, 0.30 lbs/MMBtu and not 0.20 lbs/MMBtu is the "BACT floor" for this source.

In summary, based on the additional information now in the permit record, the EPA agrees that the original BACT NOx limit in the 2007 PSD permit was based on errors and incorrect assumptions.

Whether the source has investigated all available options to reduce emissions and demonstrated that compliance cannot be achieved

Prior to any attempt to revise or adjust an existing BACT limit, a source has an obligation to demonstrate that it has investigated all available options to reduce emissions to a lower (if not permitted) level and that compliance with the BACT permit limit cannot reasonably be achieved. STK's 2010 revision power applications include a description of the efforts it has undertaken to reduce NOx emissions at the No. 7 Boiler. The additional information STK provided subsequent to our March 3, 2013 letter includes a demonstration that it cannot comply with the current NOx BACT limit through further boiler optimization when burning mixtures of permitted fuels. STK also submitted significant new information on NOx emissions, fuels combusted (including chloride content), and hydrogen chloride emissions to support the control technology evaluation in its updated BACT analysis. Based on the additional information now in the permit record, EPA agrees that STK has investigated all available options to reduce emissions and has demonstrated that compliance with the current NOx BACT limit cannot be achieved.

Next Steps

Based on a review of the additional information provided by STK to supplement the administrative record for its request for a permit revision, the EPA has concluded that there is a sufficient basis for Ecology to proceed with consideration of STK's request to correct the NOx BACT limit. In reaching this conclusion, the EPA notes that, consistent with both Ecology's PSD regulations and the federal PSD regulations at 40 C.F.R. § 52.21, any revised permit issued by Ecology must continue to meet all applicable PSD permitting requirements in the same manner as the previously issued permit. In this case, to the extent Ecology proposes an increase in the NOx BACT limit and the annual NOx emission

limit, the revised permit must continue to require compliance with BACT for NOx based on current technology and ensure compliance with NO_2 NAAQS and PSD increments. See WAC 173-400-750(1); Ogden Memo; In the Matter of Noranda Alumina, LLC, Order on Petition VI-2011-04 (December 14, 2012). In addition, because significant additional information has been submitted by STK since its 2010 applications for a permit revision, Ecology will need to update its BACT analysis and technical support document to consider that additional information, especially with respect to the new information on NOx emissions, fuels combusted (including chloride content), and hydrogen chloride emissions.

If you have any questions on this letter, please do not hesitate to call me or have your staff contact David Bray at (206) 553-4253.

Sincerely,

Kate Kelly, Director
Office of Air, Waste and Toxics

cc: Jeff Johnston, Science & Engineering Section Manager
Air Quality Program
Washington Department of Ecology